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## Ensuring performance quality in commercial buildings

*Sam Sandquist*. Journal of Property Management. Chicago: Mar/Apr 1999.Vol.64, Iss. 2; pg. 84, 5 pgs

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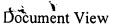| | |
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**Abstract** (Document Summary)

Performance contracts have become a popular way for property managers to upgrade aging facilities and save money on energy bills. Using performance contracts, service providers can now define, deliver, and measure first-rate service quality and performance of building systems. Performance contracting is a process through which the service provider agrees to supply a wide range of services in response to specific client needs. The performance contract sets specific costs for HVAC and related services so the owner or manager benefits from having fixed costs. The service provider profits by achieving savings through efficiencies of operation. Monitoring commercial buildings from a remote service center results in several benefits to the property manager, including increased building system availability and substantial savings on maintenance and energy costs.

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Performance contracts have become a popular way for property managers to upgrade aging facilities and save money on energy bills. But what if you could go one step further and actually contract for comfort? What if you could "guarantee" equipment reliability and uptime? Using performance contracts, service providers can now define, deliver, and measure first-rate service quality and performance of building systems.

Performance contracting is a process through which the service provider agrees to supply a wide range of services in response to specific client needs. The contract "guarantees" that service will be provided for specific prices and that repairs and downtime will be kept within agreed upon parameters. The performance contract sets specific costs for HVAC and related services so the owner or manager benefits from having fixed costs. The service provider profits by achieving savings through efficiencies of operation.

Service technology advances have resulted in the availability of several tools designed to help managers quantify information about their building systems in a useful and clear manner. These include remote service monitoring; diagnostic tools; information generated by the building automation system; and new wireless technology to increase responsiveness, reduce equipment downtime, and save money.

Service Monitoring

Monitoring commercial buildings from a remote service center results in several benefits to the property manager, including increased building system availability and substantial savings on maintenance and energy costs. Equipment downtime can be greatly reduced by having systems in place that recognize potential equipment failure before it happens. It is much easier, and less expensive, to perform preventive maintenance on suspect HVAC equipment than to have to repair or replace equipment that has already broken down.

Monitoring analysts are able to remotely check several data points that can automatically record information about life safety, security, HVAC, and mechanical systems. An example of this is ⓘKFC's remote monitoring partnership, where a service provider monitors coolers, freezers, HVAC units, exhaust fans, and interior and exterior lighting in more than 1,400 restaurants throughout the United States.

ⓘKFC restaurants around the country were monitored to benchmark operating conditions and run-times (how many hours a day a piece of equipment should be running) for major pieces of equipment such as air coolers and lighting systems. A profile for typical run-times was created for each ⓘKFC region and used as a standard by which to measure the performance of systems in each of the other ⓘKFC restaurants. System operating parameters are under constant scrutiny, and if any piece of equipment is found to be running at a high variance from its region's average, that equipment is immediately investigated to find out why it is not working at peak efficiency or comfort levels. The problem can then be taken care of with preventive maintenance or an equipment upgrade, greatly reducing equipment downtime that could affect the restaurant's business.

The most significant benefit here is the ability to identify potential equipment problems and initiate service activities before failure occurs. On a rooftop cooling unit, for example, data points can include discharge temperature, occupant area temperature, and the refrigerant hot-gas bypass temperature of the unit itself. A significant change in any of these numbers could indicate a potential compressor malfunction. Sudden temperature and pressure changes within pieces of HVAC equipment are reliable indicators that service may be needed and help to provide a window of time in which equipment can be repaired before it fails. Fortunately, with 24hour monitoring, these indicators will be caught, and service technicians can be dispatched immediately to take care of any work that might need to be done before something major can go wrong. Forwardthinking service providers are using these predictors to deliver systems availability and equipment uptime. This means a great deal in the way of comfort, convenience, and cost-savings for both property managers and tenants.

Third-party monitoring and service also takes the burden off property maintenance personnel to keep a constant watch on HVAC, lighting, or life-safety equipment. Systems are monitored 24-hours a day, which frees on-site personnel to take care of other matters critical to the maintenance of the property. Instead of periodic checks, data from monitored equipment is collected at intervals ranging from every few minutes to every two or three hours. Trend reports can then be generated to chart equipment performance graphically over a given time frame. Gradual decreases in efficiency can be detected on trend reports, which also can be helpful in showing changes in performance after service work is completed.

Guaranteed Uptime

When it comes to facilities management, the ideal situation would be to have building systems that never fail. HVAC equipment would always run as needed, and repairs and equipment replacement would never be required. Obviously, it is impossible to expect every piece of equipment to work without any hitches, but what if you had a guarantee that promised-and delivered-98 percent production uptime per year?

ⓘLockheed Martin's Ocala, Fla., facility has just that. Their written service contract states that their facilities will achieve at least 98

percent production uptime per year as a result of improved HVAC equipment and maintenance. The service provider is responsible for continuously monitoring production system parameters that are used to define "uptime," or system availability. Before this agreement was implemented in 1994, ⓘLockheed Martin was experiencing 6 percent production downtime due to difficulties with heat, ventilation, and air conditioning adversely affecting production. This 4-percent increase in uptime, which may at first seem small, translates into an annual cost savings of $280,000. If the service provider fails to achieve this benchmark, it will suffer financial penalties.

New Tools in Monitoring

Building systems monitoring has become more advanced, and response time has been improved greatly thanks to new computer technology being used by field service technicians. Ruggedized laptop computers with wireless communications systems are proving to be valuable tools that increase performance and responsiveness.

Whereas in the past, the emphasis in building controls has been on new hardware, emphasis now seems to be shifting to new software products and information technologies. With products like Wenn/Soft's Service Management Series and remote data communications modules, service technicians can do virtually all their reporting from project sites. Data can now be collected in the field, where it originates, saving valuable time it used to take to return to a home office and input the information into a computer. Now, technician dispatches, communications, customer tracing, records of completed services, and·labor and expense reporting can all be done on site. The computer then transmits this information through a built-in, wireless modem to the monitoring center or main office.

The information from the service technician's laptop automatically feeds into a service management database that includes project location, service contracts, contact names/numbers, and types of equipment. A service history record, which identifies each repair with a code that allows service providers to flag recurring problems that need special attention, also is kept. Preventive maintenance can then be automatically scheduled according to a set time frame.

In case a situation requires emergency maintenance, the database also tracks response time. When a service technician gets to the job site, he or she will enter the arrival time. This information is added to the alarm and dispatch times already in the database. From this information, customers are given documented response time for service calls. It is even possible to have response time written into your service contract.

At the job site, technicians can use their PCs to retrieve technical support from the service management system. All technicians are connected through the network, providing for nationwide e-mail communication. This connectivity is especially helpful because it allows technicians to consult their peers while actually working on a project. Customers benefit from the expertise of many technicians, not just the individual working on their particular service projects. Site personnel are freed to work on other maintenance tasks.

Evidence of Performance

Today, property managers are having more demanded of them by their tenants and their owners. Tenants want to be sure they are getting all the comfort and security they need. Round-the-clock monitoring can help ensure peak performance in these areas. In addition, by providing tenants with the monthly reports produced by the monitoring firm, managers can offer concrete evidence that performance meets tenant expectations.

Generally speaking, these monthly performance reports show any alarm activity and changes made to equipment schedules. Alarms occur when unusual data is collected at one of the monitoring points. For example, if a chilled water temperature registers outside of a prescribed range, an attention signal immediately shows up at the monitoring center to alert you that there is a problem. In addition, any schedule changes that were requested during the month will be reported.

While these reports are specific enough to show exactly what is happening, you don't need to be an engineer to understand them. Rather, the reports are written for tenants and property managers as well as facilities specialists. They provide useful, insightful data that help you better manage your facilities, ensuring comfort, safety and cost efficiency.

Requests for schedule changes (e.g. increasing chiller use to cool certain areas of a facility) can be made one of two ways. They can be funneled through a specific person or department, or tenants can request them directly. Direct requests can be made by calling the service provider using a unique tenant identification number. This allows property managers to determine who made the schedule change, thus providing the option of billing the increased energy use back to the tenant.

When entering into a performance contract, property owners and managers do not need to wonder if they are really getting the most out of their investment. Responsiveness and performance can be analyzed using concrete data provided in a useful, straightforward manner. Current tools and new developments in technology let service providers show customers how to maximize their performance contracts by making facilities safer, more comfortable, and cost effective.

**[Author Affiliation]**
Sam Sandquist is the manager of the North American Building Services Center for ⓘHoneywell, Inc., in Minneapolis.

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